ORION
CREW EXPLORATION VEHICLE
WEEKLY ACCOMPLISHMENTS

PA-1
ORION FLIGHT TEST

the countdown is on for Pad Abort 1

04.23.10

The Pad Abort 1 team continued preparing for the upcoming test with a full mission rehearsal (shown above) at White Sands Missile Range (WSMR) in New Mexico. The rehearsal was an exact run through of all of the components that will be involved during the actual test from communication to the range to the chase helicopters locating the test article after it lands. Everything went as planned during the rehearsal.

The Ground Test Article (GTA) took another step towards becoming a completely assembled crew module as fittings were installed to the backbone (shown right) at the Michoud Assembly Facility (MAF) in New Orleans, Louisiana. Once all of the fittings are mounted to the backbone, the entire backbone assembly will be ready to be integrated with the aft bulkhead and barrel GTA, which have already been welded together (also shown in picture.) The MAF team has also completed the cone/mid ring confidence panel welds, has begun the Non Destructive Evaluation (NDE) of the welds, and is now preparing for the cone to mid ring weld on the GTA.

The Sensor Test for Orion RelNav Risk Mitigation (STORRM) Reflective Elements were installed on the PMA-2 visual docking target by ISS crew member Souichi Noguchi (shown left) during the recent STS-131 docked operations. The reflective elements (the four gray, triangle objects on target below left) comprise the short-range docking target for the Vision Navigation Sensor (VNS). The reflective elements will reflect light at wavelengths greater than 1200 nano-meters (the VNS operates at 1570 nm). The returns from the reflective elements will be seen as "bright" spots by the VNS and will be used to determine the relative position and relative attitude of the docking target with respect to the sensor.

This information will use the Relative Navigation filter to further refine the relative states between the chaser and target vehicle in support of rendezvous and docking. With the aid of the reflective elements, the VNS would require orders of magnitude more processing capabilities to operate with specific features (similar to feature recognition algorithms in development today).